

IN THE DRAWINGS

The attached sheet of drawings includes changes to Fig. 1. This sheet, which includes Fig. 1, replaces the original sheet including Fig. 1.

Attachment: Replacement Sheet

REMARKS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 1-8 and 10-19 are pending in this application. Claims 1, 3, 7, and 8 are amended, Claim 9 is canceled, and Claims 12-19 are added by the present amendment.

Amendments to the claims and new claims find support in the application as originally filed, at least in the drawings at Figures 23, 24, and 31-33. Thus, no new matter is added.

In the outstanding Office Action dated January 7, 2009, the Title of the invention was objected to; the drawings were objected to; Claim 8 was rejected under 35 U.S.C. § 112, second paragraph; Claims 1, 2, and 7 were rejected under 35 U.S.C. § 102(e) as anticipated by U.S. Patent 7,228,943 to Kugiya et al.; Claim 3 was rejected under 35 U.S.C. § 103(a) as unpatentable over Kugiya and U.S. Patent 5,217,091 to Shiina et al. (herein “Shiina”); Claims 4-6, 8, and 9 were rejected under 35 U.S.C. § 103(a) as unpatentable over Kugiya and U.S. Patent 3,706,357 to Simpson¹; and Claims 10 and 11 were rejected under 35 U.S.C. § 103(a) as unpatentable over Kugiya and Simpson and further in view of U.S. Patent 5,085,294 to Iwata.

Initially, Applicants and Applicants’ representative gratefully acknowledge the courtesy of an interview with Examiner Salata on February 6, 2009. During the interview, differences between the claimed invention and references in the outstanding Office Action were discussed. Comments and claim amendments discussed during the interview are reiterated below.

¹ Applicants note that the Form PTO-892 attached to the outstanding Office Action fails to include Simpson. Applicants respectfully request that an updated Form PTO-892 be provided including Simpson.

Regarding the objection to the Title, the Title is amended and it is respectfully submitted the amended Title is clearly indicative of the invention to which the claims are directed. Therefore, it is respectfully requested the objection to the Title be withdrawn.

Regarding the objection to the drawings, Figure 1 is amended to label the rectangular boxes as suggested in the Office Action. Accordingly, it is respectfully requested the objection to the drawings also be withdrawn.

Furthermore, with respect to the rejection under 35 U.S.C. § 112, second paragraph, Claim 8 is amended to depend from Claim 7. Accordingly, it is respectfully requested the rejection of Claim 8 also be withdrawn.

Applicants respectfully traverse the rejection of Claims 1, 2, and 7 under 35 U.S.C. § 102(e) as anticipated by Kugiya, with respect to amended independent Claims 1 and 7.

Amended Claim 1 is directed to an elevator apparatus that includes, in part, a safety device provided on a car that is raised and lowered within a hoistway. The safety device is configured to bring the car to an emergency stop. The elevator apparatus also includes a safety control portion that detects an abnormality in an elevator and outputs an actuation signal, an electrical actuator portion that actuates the safety device in response to the actuation signal output from the safety control portion, and a mechanical actuator portion that mechanically detects an abnormality in the elevator and actuates the safety device through mechanical transmission of a control force through the speed governor rope. In addition, the electrical actuator is configured to actuate the safety device through mechanical transmission of a control force through the speed governor rope.

As discussed during the interview, Kugiya and other references cited in the Office Action fail to teach or suggest each of the features of independent Claim 1. For example, the references fail to teach or suggest an electrical actuator that actuates a safety device through mechanical transmission of a control force through a speed governor rope as well as a

mechanical actuator portion that mechanically detects an abnormality in the elevator and actuates the safety device through a mechanical transmission of a control force through the speed governor rope.

As shown in the non-limiting embodiment of Applicants' Figure 31, a mechanical actuator portion 214 may stop rotation of a speed governor sheave 210 and the movement of a speed governor rope 211 by sandwiching the speed governor rope 211 between the mechanical actuator 214 and the speed governor sheave 210 when the rotation speed of the speed governor sheave 210 reaches a preset speed. Furthermore, an electrical actuator portion 215 may grip the speed governor rope 211 in response to input of an actuation signal and thereby actuate the safety device 209 provided on the car 206.

Thus, an embodiment according to Claim 1 may advantageously include both a mechanical actuator portion that mechanically detects an abnormality in the elevator and actuates a safety device through mechanical transmission of a control force through a speed governor rope as well as an electrical actuator portion that actuates the safety device through mechanical transmission of a control force through a speed governor rope.

Kugiya describes an elevator apparatus with position correction for overspeed detection.² Kugiya describes position and speed detectors that provide information regarding car position and car speed to a governor 1 via electrical connection, and Kugiya indicates that the governor 1 may issue commands via electrical connection. In particular, Kugiya indicates that "the speed governor 1 is electrically connected to the car speed detecting means 30, the car position detecting means 40, the break 50, the emergency stop 60 and the car position detecting unit 70, so that the above-described information transmission can be performed."³ In other words, according to Kugiya, a governor receives car position and speed information

² Kugiya at Title.

³ Kugiya at column 4, lines 31-35.

and provides brake and emergency commands electrically. Therefore, Kugiya fails to teach or suggest an electrical actuator that actuates a safety device through mechanical transmission of a control force to a speed governor rope, and Kugiya also fails to teach or suggest a mechanical actuator that mechanically detects an abnormality and actuates a safety device through a mechanical transmission of a control force through a speed governor rope, as required by amended Claim 1.

Accordingly, it is respectfully submitted that independent Claim 1 and claims depending therefrom patentably define over Kugiya.

Amended Claim 7 is directed to an elevator apparatus that includes, in part, a safety device that is provided on the car to bring the car to an emergency stop, a safety control portion that detects an abnormality in an elevator and outputs an actuation signal, and a backup power source for enabling functioning of at least the safety control portion in case of power failure. Furthermore, in case of power failure, the safety device is actuated by cutting off electric power supply by the backup power source after the car is moved to a landing floor by the drive control portion.

As discussed during the interview, Kugiya fails to teach or suggest each of the features of amended Claim 7. Furthermore, as discussed during the interview, Simpson also fails to teach or suggest the features recited in previously presented Claim 9, which are similar to those added to Claim 7.

Simpson describes an elevator emergency actuator and rescue unit that includes a timer for a coil RTCO that is set to delay the operation of a switch RTCO sufficiently to provide time for the emergency operation of the car and doors to be completed.⁴ Also, Simpson indicates that “when the delay period of the timer RTCO ends, the coil B becomes de-energized, opening the switch B₁ to disconnect the battery 40 from the emitters of the

⁴ Simpson at Title and column 2, lines 64-67.

transistors Q₁ and Q₂, thereby turning off the emergency power supply from the circuits shown in FIG. 1.”⁵ In other words, according to Simpson, a delay period of a timer causes emergency power to be turned off. However, as discussed during the interview, Simpson fails to teach or suggest cutting off electric power supplied by a backup power source after a car is moved to a particular landing floor. Furthermore, as discussed during the interview, Simpson also fails to teach or suggest that a safety device is actuated by cutting off electric power supply by a backup power source after a car is moved to a landing floor by a drive control portion. Furthermore, it is respectfully submitted that the other references in the Office Action also fails to teach or suggest each of the features of amended Claim 7.

Accordingly, Applicants respectfully submit that independent Claim 7 and claims depending therefrom also patentably define over the references in the Office Action.

Accordingly, Applicants respectfully request the rejection of Claims 1, 2, and 7 under 35 U.S.C. § 102(e) as anticipated by Kugiya be withdrawn.

Furthermore, Applicants respectfully traverse the rejection of Claim 3 under 35 U.S.C. § 103(a) as unpatentable over Kugiya and Shiina.

Amended Claim 3 is directed to an elevator apparatus according to Claim 1, wherein the mechanical actuator portion detects a break in fewer than all of the plural main ropes suspending the car within the hoistway.

In a non-limiting embodiment, Applicants’ Figure 24 shows an example of a mechanical actuator portion that detects a break in one of four main ropes that suspend the car within a hoistway. Thus, according to an embodiment of Claim 3, the mechanical actuator may advantageously detect a break in fewer than all of the plural main ropes suspending a car within a hoistway.

⁵ Simpson at column 3, lines 40-46.

Applicants respectfully submit that Kugiya and Shiina fail to teach or suggest each of the features of amended Claim 3. As noted in the Office Action, Kugiya fails to disclose a rope break detector. Furthermore, as asserted in the Office Action, Shiina may merely conclude that a rope has been broken based on a detection of an overspeed. Accordingly, Shiina fails to teach or suggest a method by which a break in fewer than all of the plural main ropes may be detected. Accordingly, it is respectfully submitted that Kugiya and Shiina fail to teach or suggest “the mechanical actuator portion detects a break in fewer than all of the plural main ropes suspending the car within the hoistway,” as recited in Claim 3.

Therefore, it is respectfully submitted that dependent Claim 3 patentably defines over Kugiya and Shiina for that distinct reason in addition to the reasons noted above with respect to Claim 1 from which it depends.

Accordingly, it is respectfully requested the rejection of Claim 3 under 35 U.S.C. § 103(a) be withdrawn.

Furthermore, Applicants respectfully traverse the rejections of Claims 4-6 and 8-11 under 35 U.S.C. § 103(a) as unpatentable over Kugiya and Simpson or Kugiya, Simpson, and Iwata.

Claims 4-6 and 8-11 depend from either independent Claims 1 or 7, which as discussed above are believed to patentably define over Kugiya, Simpson, and Iwata. Therefore, it is respectfully requested those rejections under 35 U.S.C. § 103(a) also be withdrawn.

Claim 12 is directed to an elevator apparatus according to Claim 1 wherein the safety control portion detects a break in fewer than all of the plural main ropes suspending the car within the hoistway. As discussed above with respect to amended Claim 3, it is respectfully submitted that the references in the Office Action also fail to teach or suggest the features of amended Claim 12. Thus, it is respectfully submitted that Claim 12 also patentably defines

over the references in the Office Action for that distinct reason in addition to the reasons discussed above with regard to independent Claim 1 from which it depends.

Claim 13 is added to recite an apparatus according to Claim 1 wherein the electrical actuator portion is mounted to the hoistway. As discussed above, electrical actuators in the references are mounted to the car. Accordingly, it is respectfully submitted that the references in the Office Action fail to teach or suggest an electrical actuator portion mounted to a hoistway. Therefore, it is respectfully submitted that Claim 13 patentably defines over the references in the Office Action for that distinct reason in addition to the reasons noted above with respect to Claim 1 from which it depends.

Claim 14 is added to recite an apparatus according to Claim 1 wherein the electrical actuator portion actuates the safety device through a mechanical transmission of a control force through a rope catching mechanism that stops rotation of a speed governor sheave mounted to the hoistway, and a speed governor rope mounted on the speed governor sheave and attached to the safety device. For reasons similar to those discussed above with respect to Claim 13 and Claim 1, it is respectfully submitted that the references in the Office Action also fail to teach or suggest the features of Claim 14. Therefore, it is respectfully submitted that Claim 14 also patentably defines over the references in the Office Action for that distinct reason in addition to the reasons discussed above with respect to independent Claim 1 from which it depends.

Independent Claim 15 is added to recite an elevator apparatus that includes, in part, a safety control portion that detects a break in fewer than all of the plural main ropes suspending the car within the hoistway and outputs an actuation signal based on the detected break, and an electrical actuator portion that actuates a safety device provided on the car in response to the actuation signal output from the safety control portion. Thus, for reasons similar to those noted above with respect to independent Claim 7, it is respectfully submitted

that the references in the Office Action also fail to teach or suggest each of the features of added Claim 15.

Claims 18 and 19 are added to recite features of the invention with varied scopes. Applicants submit the features of Claims 18 and 19 also are not taught or suggested by the cited references.

Accordingly, Applicants respectfully submit that independent Claims 1, 7, 15, 18, and 19, and the claims depending therefrom, are allowable.


Consequently, in light of the above discussion and in view of the present amendment this application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested.

Respectfully submitted,

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